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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/733,874      | 12/08/2000  | Michael J. Scaggs    | LMPY-10910          | 3133             |

7590 10/27/2003

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EXAMINER

DIAZ, JOSE R

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 10/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/733,874

Applicant(s)

SCAGGS, MICHAEL J.

Examiner

José R Díaz

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 9,27 and 35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9,27 and 35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9, 27 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitwalsky et al. (US Pat. No. 5,766,497) in view of Kakehata et al. ("Efficiency Characterization of Vacuum Ultraviolet Molecular Fluorine (F<sub>2</sub>) Laser (157 nm) Excited by an Intense Electric Discharge", IEEE Journal of Quantum Electronics, Volume 27, Issue 11, Nov. 1991, Page(s): 2456 –2464), and further in view of Gupta et al. (US Pat. No. 5,057,184).

Regarding claim 9, 27, and 35, Mitwalsky et al. teaches a method comprising the steps of: exciting a gain medium (U.V. laser radiant energy) to generate an output beam (see col. 3, lines 5-15); and directing the output beam onto a multi-layer semiconductor device (10), (see fig. 1 and col. 3, lines 5-15) to selectively etch away material (26) therefrom (see fig. 2); shaping the beam into pattern using a mask (photomask) (see col. 3, line 11-13); and imaging the shaped beam onto the semiconductor device (10) (see fig. 1 and col. 3, lines 5-15). Furthermore, Mitwalsky et al. acknowledges the use of lower laser wavelengths for etching the desired layers (see col. 6, lines 7-10). With regards to claims 27 and 35, please note that Mitwalsky et al. teaches a passivation layer 18 (see fig. 1), which is selectively etched to create the opening 26 (see fig. 2).

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However, Mitwalsky et al. is silent with respect to the specific U.V. laser radiant energy used in the etching process. Kakehata et al. teaches that it is well known in the art to use a  $F_2$  laser (157 nm) as the laser radiant energy for etching (photoablation) layers (see col. 1, lines 1-8 in first paragraph of the "Introduction"). Mitwalsky et al. and Kakehata et al. are analogous art because they are from the same field of endeavor as applicant's invention. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a  $F_2$  laser as the laser radiant energy for etching (photoablation) layers. The motivation for doing so, as is taught by Kakehata et al., is that molecular  $F_2$  represents the most powerful and efficient ultraviolet laser source for application such as etching or photoablation (col. 1, lines 1-8 in first paragraph of the "Introduction").

In addition, Mitwalsky et al. is silent with respect to the location of the monitoring system. Gupta et al. teaches, in figure 1, a well-known monitoring system comprising a camera (30) aligned co-linearly with the final trajectory of the output laser beam. Mitwalsky et al. and Gupta et al. are analogous art because they are from the same field of endeavor as applicant's invention. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a monitoring system comprising a camera aligned co-linearly with the final trajectory of the output laser beam. The motivation for doing so, as is taught by Gupta et al., is providing pictures of the etching of the substrate surface (col. 4, lines 9-11).

Therefore, it would have been obvious to combine Kakehata et al. with Mitwalsky et al., and further with Gupta et al. to obtain the invention of claims 9, 27, 35.

***Response to Arguments***


3. Applicant's arguments, see pages 4-7 of Remarks, filed September 15, 2003, with respect to amended claims 9, 27 and 35 have been fully considered and are persuasive. The Final rejection of claims 9, 27 and 35 (as now amended) has been withdrawn.

***Correspondence***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R Díaz whose telephone number is (703) 308-6078. The examiner can normally be reached on 9:00-5:00 Monday, Tuesday, Thursday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
**GEORGE ECKERT  
PRIMARY EXAMINER**

JRD